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Date: July 20, 1994

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MEMORANDUM

JROCSM 080-94
20 July 1994

MEMORANDUM FOR DIRECTOR, OPERATIONAL PLANS AND INTEROPERABILITY DIRECTORATE, ATTN: CHIEF, JSID

Subject: Draft Mission Need Statement (MNS) for the Joint Simulation System (JSIM)

1. Per your request, two star review of the JSIM draft MNS has been completed. The Army, Air Force, Marine Corps and Joint Staff J-8 Directorate concur without comment. The Navy concurs with comments as indicated*.
2. It is our understanding that the JSIM is not an ACAT I program and is to be managed under a Joint Memorandum of Understanding (MOU) between the Services. As such, the JROC will not review the MNS, but does request an information brief on the program during the month of September. The JROC point of contact is LTC Jim Hardin, x49621.

DENNIS A. WIL
COL, USA
JROC Secretar

Enclosure

References:

- * Department of the Navy, N81 Memorandum, Review of Joint Simulation System (JSIMS) Mission Need Statement (MNS), 6 June 1994.

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DEPARTMENT OF THE NAVY

OFFICE OF THE CHIEF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO
3500
Ser N81/4U643274
6 June 1994

**MEMORANDUM FOR JOINT REQUIREMENTS OVERSIGHT COUNCIL (JROC)
SECRETARIAT**

**Subj: REVIEW OF JOINT SIMULATION SYSTEM (JSIMS) MISSION NEED STATEMENT
(MNS)**

Ref: (a) JROCSM 054-94 of 27 May 94

1. Navy flag review comments are provided in response to reference (a).
2. Joint Potential Designator (JPD), paragraph 6: Recommend that the assigned JPD be "" vice "Interest"

Rationale: A Joint Program Office (JPO) has been established, based on joint service Memorandum of Agreement (MOA), to develop JSIMS as the replacement for the current Aggregate Level Simulation Protocol (ALSP). Clearly the focus and applicability of this mission need already has full services' participation.

3. Administrative: Rewrite first sentence, paragraph 2.c (7) as follows -- " the development of data/knowledge bases...".

Rationale: Correctness.

D.T. OLIVER
Director
Assessment Division

22 July 1994

MISSION NEED STATEMENT FOR THE JOINT SIMULATION SYSTEM

1. Defense Planning Guidance Element

This Joint Simulation System (JSIMS) mission need statement (MNS) responds to the DOD "Planning Guidance FY 1995-1999." Specifically:

- a. " direction of the combatant commands, CINCACOM for most CONUS-based forces, and the other unified commands for their assigned forces, place increased emphasis on joint and combined exercises and training that stresses interoperability and joint warfighting doctrine and prepares joint task force commands and staffs for crisis and contingency operations." (Page 34)
- b. " emphasis on use of simulators, to include the use of distributed simulation for large-scale interactive training, making use of test ranges or facilities where feasible, to provide most efficiently a well trained force." (Page 35)
- c. " emphasis on integration of training facilities for joint exercises through integrated use of all forms of simulation and field exercises." (Page 35)
- d. " coordination with the combatant commanders, Services and CJCS will develop appropriate training programs and exercises to support peacekeeping, peace enforcement, counterdrug, disaster relief, and humanitarian assistance operations." (Page 35)
- e. " plans to use advances in simulation to reduce requirements for field training of command staffs with allies." (Page 36)
- f. " keep our military ready to fight, we must maintain a force that can respond quickly, is sustainable, and is prepared to fight upon arrival. This requires intense training, high readiness, highly qualified and motivated personnel, rapid strategic mobility, and sufficient support and sustainment capabilities." (Page 14)

2. Mission and Threat Analyses

- a. **Mission.** Changing world conditions and US force levels, structure, and capability demand improvement in our ability to react globally, performing missions across the full range of military operations, using appropriate military capabilities organized in joint and combined forces. All aspects of preparing for war can be improved through the use of computer simulation. The mission of the Joint Simulation System is to provide readily available, operationally valid computer simulated environments for use by the CINCs, their components, other joint organizations, and the Services to jointly educate, train, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational input to the acquisition process.

- b. **Objectives.** The objectives of JSIMS are:

- (1) To integrate the range of missions of the Armed Forces within a common

framework--one that includes live, virtual, and constructive modeling and simulation capabilities and is eventually capable of addressing training, testing, and analytic needs.

(2) To provide a training environment at the operational level of war which will also accommodate requirements at the strategic and tactical levels to include space, transportation, and intelligence, and is also capable of training down to the individual unit level.

(3) To establish a common simulation support structure which enables harmonious sharing of simulation resources, processes, and results among users.

(4) To enable simulation users to readily create or access a simulation environment which supports their requirements.

(5) To enable joint simulation users to interact freely with elements of their command structure, supporting/supported organizations and other simulation centers or users.

c. General Capabilities. The required general capabilities of JSIMS include:

(1) The incorporation of simulation of missions across the full range of military operations including land, sea, air, space, and special operations with functionalities such as logistics, intelligence, medical, engineering, communication, geophysical, meteorological, oceanographic, environmental factors, and electronic warfare.

(2) The incorporation of simulation of social, economic, and political factors affecting the missions across the full range of military operations.

(3) Tailored display of the simulation results (either on or emulating operational C4I systems for training and exercise applications or via computer work stations for analysis).

(4) Distributed and remote computer processing to increase individual user capability through synergistic use of geographically and functionally separated but interoperable systems, models, and organizations.

(5) Flexibility to selectively accommodate different functional applications and levels of detail within an application (e.g. tactical, operational, and strategic levels of warfare for training and exercises).

(6) Linkage of live forces (reality), simulators (virtual reality), and software models (constructive reality) to form an environment which can stimulate user's C4I systems.

(7) Speed the development of date/knowledge bases and creation of semi-autonomous forces to reduce overhead of exercises and enable crisis rehearsals.

d. Threat. JSIMS will enable the CINCs, their subordinate commanders, staffs, and supporting organizations to better represent the wide range of situations present in complex regional contingencies. JSIMS will not be threat specific, rather it is an overall improvement in capability to jointly train and plan against potential threats and other foreign systems. Threats to JSIMS computer systems are outlined in DST-2669- 210-94, "Threat Environment for Command, Control, Communications, Computers, and Intelligence (C4I) Systems and Networks: Telecommunications Networks; and Automated Information Systems (AIS), 15 January 1994".

e. Shortfalls of Existing Capabilities

(1) A robust complete electronic representation of the operational environment can not be created.

- (a) Existing Service warfare simulation models replicate that Service's warfare area but do not adequately inter-operate with other Service models.
- (b) Simulation models that replicate support functions such as logistics and intelligence do not interact with sufficient resolution and fidelity with combat models.
- (c) Combat adjudication models developed by the Joint and Service.
- (d) Simulation models lack varying terrain and force data bases which reduces flexibility, prevents re-use, increases costs, and reduces realism and usefulness.
- (e) Social, economic and political factors affecting missions across the full range of military operations are not adequately modeled.

(2) Simulation users can not freely interact with each other nor can they leverage other simulation capabilities through electronic connectivity.

- (a) CINCs and other simulation users are not adequately linked.
- (b) Combat simulations are not fully compatible with existing C4I systems.
- (c) Lack of a common supporting infrastructure has led to the creation of independent simulation development projects which exacerbate our inability to interoperate and ultimately raise costs and degrade effectiveness.

(3) Simulations can not be displayed on existing C2 systems.

- (a) Simulation users must use specialized equipment to display most simulations.
- (b) Simulation users are often forced to participate in simulation supported events away from their normal work areas using unfamiliar and single use equipment.

f. Timing. It is critical to bring order and direction to joint simulation for joint and Service use. The accelerating pace of technology, increasing demands, and decreasing resources require an immediate, coordinated, and cohesive approach.

3. Nonmaterial Alternatives. Changes in modeling and simulation management organizations and processes, establishment of standards and architectures, and refinement of existing advisory and control procedures could provide the means to reach an interim capability and are required to enhance any long-term system improvements. Current simulation coordination and management initiatives such as the DOD Defense Modeling and Simulation Initiative and the DODD 5000.59 provide the opportunity to create the organizational structure required to codify, coordinate, and manage simulation. However, there are no doctrine, operational concepts, tactics, or training changes that can totally satisfy the modeling and simulation requirements to support the training of JTF staffs and their Service components.

4. Potential Material Alternatives

- a. Significant simulation capability currently exists which, if made to interact and supported by a user network, could provide interim (and partial) satisfaction of the requirement.
- b. Model interface methodologies such as the Aggregated Level System Protocol (ALSP) have shown some potential for providing the means to integrate currently disparate simulation models. The confederation of models linked by ALSP could be enhanced by adding additional functionalities to cover missions across the full range of military operations now missing.
- c. The Defense Simulation Internet (DSI), a data network designed to link CINCs, Service and joint

simulation centers, Service and joint educational organization, and research laboratories, provides the initial means to link simulation users in a synergistic environment.

d. Continued enhancement of simulation models such as the Joint Theater Level Simulation, the Joint Conflict Model or other theater level campaign models developed by the joint community and the Services may also serve as part of an interim solution.

5. Constraints

a. Logistics. JSIMS must be supportable within the DOD logistics infrastructure and adhere to Corporate Information Management (CIM) guidance for managing Automated Information Systems (AIS). Reliability and maintainability must be considered early in system design to minimize support costs.

b. Transportation. N/A

c. Mapping, Charting, and Geodesy. Elements of JSIMS requiring terrain data must be compatible with Defense Mapping Agency derived products.

d. Manpower, Personnel, and Training Constraints. JSIMS design must anticipate decreased manpower availability. No specific new manpower billets will be required to support JSIMS. More efficient automated simulation support functions such as exercise design, data base building, and simulation control must be design objectives.

e. Command, Control, Communications, Computer, and Intelligence (C4I) Interfaces. Elements of JSIMS must interface with C4I systems. Functional applications involving replications of activities which prompt decision making (such as those of a CINC or JTF or component staff) must be through the C4I system to be used in actual operations. JSIMS design must adhere to Department of Defense Intelligence Information Systems (DODIIS) and other emerging C4I standards as advocated in C4I For the Warrior for those interfaces required for operation and applications of the system.

f. Security. JSIMS must be compatible with and take advantage of existing DOD security programs. JSIMS must accommodate multi-level automated systems security.

g. Standardization and Interoperability. JSIMS will incorporate applicable standards and will provide the means to establish standards as required to harmonize and coordinate its' separate elements. System(s) fielded to satisfy the requirements for the JSIMS must comply with the applicable open system information technology standards in the DOD Technical Reference Model (TRM) part of the Technical Architecture Framework for Information Management (TAFIM).

6. Joint Potential Designator (JPD). Joint.